

S/N UNKNOWN

PATENT

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Applicant: Valen, et al. Serial No.: UNKNOWN
Filed: CONCURRENT HEREWITH Docket No.: 975.326USW1
Title: PAGING CONTROL METHOD AND APPARATUS

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By: 

Name: Susan Heuiser

PRELIMINARY AMENDMENT

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Please enter the following preliminary amendment into the above-referenced application.

ABSTRACT

Please insert the attached abstract into the application as the last page thereof.

CLAIMS

Please amend claims 3, 11, 14, 15, and 16 as follows. A clean copy of the entire set of claims is included below. A marked up copy of the amended claims is included in Appendix A.

1. A paging control method for a mobile communication network to which at least two non-coordinated core networks are connected, comprising the steps of:

- a) checking a service state of a mobile station, when a request for a paging message to said mobile station has been received from one of said non-coordinated core networks; and
- b) transmitting a multicall paging message using an existing signaling link and/or mobile station location information known in a radio access network, when said mobile station is already connected to another one of said non-coordinated core networks.

2. A paging control method according to claim 1, wherein said checking step is performed by a radio network controller of said mobile communication network by determining whether said mobile station has already a connection, wherein a normal paging operation by using a paging channel is performed, when the mobile station has no connection.

3. (Once Amended) A paging control method according to claim 1, wherein said multicall paging message is transmitted on a channel selected in accordance with the service state of said mobile station.

4. A paging control method according to claim 3, wherein said multicall paging message is transmitted on a dedicated channel, when said mobile station is in a dedicated channel active state.

5. A paging control method according to claim 4, wherein said multicall paging message contains an information defining a requested bearer, a page mode and a core network identification.

6. A paging control method according to claim 3, wherein said multicall paging message is transmitted on an FACH channel, when said mobile station is in an RACH/FACH state.

7. A paging control method according to claim 6, wherein said multicall paging message includes an information defining a requested bearer, a core network identification and a page mode.

8. A paging control method according to claims 7, wherein said multicall paging message includes an information defining a dedicated channel which said mobile station has to start using for signaling.

9. A paging control method according to claim 3, wherein said multicall paging message is transmitted on a PCH channel, when the mobile station is in an RACH/PCH state.

10. A paging control method according to claim 9, wherein said multicall paging message includes an information defining a requested bearer, a core network identification and a radio network temporary identity.

11. (Once Amended) A paging control method according to claim 5, wherein said mobile station checks a possibility of creating the requested bearer and responds with a multicall paging response message comprising an information as to whether the requested bearer can be created, or not, and an appropriate protocol information.

12. A paging control apparatus for a mobile communication network to which at least two non-coordinated core networks (5, 6) are connected, comprising:

a) means (3) for checking a service state of a mobile station (1), when a request for a paging message to said mobile station (1) has been received from one said of non-coordinated core networks (5, 6); and

b) means (3) for transmitting a multicall paging message using an existing signaling link and/or mobile station location information known in a radio access network, when said mobile station is already connected to another one of said non-coordinated core networks.

13. A paging control apparatus according to claim 12, wherein said paging control apparatus comprises a radio network controller **(3)** of said mobile communication system.

14. (Once Amended) A paging control apparatus according to claim 12, wherein said non-coordinated core networks comprise a GSM-GPRS core network with no Gs interface between a Mobile Switching Center **(5)** and a Serving GPRS Support Node **(6)**.

15. (Once Amended) A paging control apparatus according to claim 12, wherein said mobile communication network comprises a GSM network.

16. (Once Amended) A paging control apparatus according to claim 12, wherein said non-coordinated core networks comprise a GSM network, a GPRS network, a GSM based UMTS, a GPRS based UMTS or any other circuit- and/or packet-switched core network nodes.

17. A paging control apparatus according to claim 16, wherein said one of said non-coordinated core networks comprises a mobile switching center **(5)** and wherein said other one of said non-coordinated core networks comprises a Serving GPRS Support Node **(6)**, or vice versa.

18. A paging control apparatus according to claim 17, wherein said mobile switching center is a GSM based UMTS mobile switching center and wherein said Serving GPRS Support Node is a GPRS based UMTS SGSN.

REMARKS

The above preliminary amendment is made to insert an abstract page into the application and to remove multiple dependencies from claims 3, 11, 14, 15, and 16.

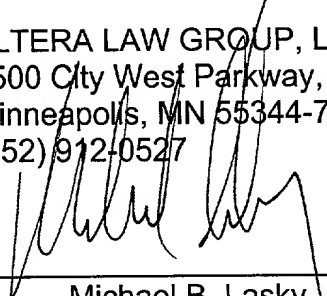
Applicant respectfully requests that this preliminary amendment be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Michael B. Lasky at (952) 912-0527.

Respectfully submitted,

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Dated: 3 April 2001



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Appendix A
Marked Up Version of the Amended Claims

1. A paging control method for a mobile communication network to which at least two non-coordinated core networks are connected, comprising the steps of:
 - a) checking a service state of a mobile station, when a request for a paging message to said mobile station has been received from one of said non-coordinated core networks; and
 - b) transmitting a multicall paging message using an existing signaling link and/or mobile station location information known in a radio access network, when said mobile station is already connected to another one of said non-coordinated core networks.
2. A paging control method according to claim 1, wherein said checking step is performed by a radio network controller of said mobile communication network by determining whether said mobile station has already a connection, wherein a normal paging operation by using a paging channel is performed, when the mobile station has no connection.
3. (Once Amended) A paging control method according to claim 1 [or 2], wherein said multicall paging message is transmitted on a channel selected in accordance with the service state of said mobile station.
4. A paging control method according to claim 3, wherein said multicall paging message is transmitted on a dedicated channel, when said mobile station is in a dedicated channel active state.
5. A paging control method according to claim 4, wherein said multicall paging message contains an information defining a requested bearer, a page mode and a core network identification.

6. A paging control method according to claim 3, wherein said multicall paging message is transmitted on an FACH channel, when said mobile station is in an RACH/FACH state.

7. A paging control method according to claim 6, wherein said multicall paging message includes an information defining a requested bearer, a core network identification and a page mode.

8. A paging control method according to claims 7, wherein said multicall paging message includes an information defining a dedicated channel which said mobile station has to start using for signaling.

9. A paging control method according to claim 3, wherein said multicall paging message is transmitted on a PCH channel, when the mobile station is in an RACH/PCH state.

10. A paging control method according to claim 9, wherein said multicall paging message includes an information defining a requested bearer, a core network identification and a radio network temporary identity.

11. (Once Amended) A paging control method according to claim 5[, 7 or 10], wherein said mobile station checks a possibility of creating the requested bearer and responds with a multicall paging response message comprising an information as to whether the requested bearer can be created, or not, and an appropriate protocol information.

12. A paging control apparatus for a mobile communication network to which at least two non-coordinated core networks **(5, 6)** are connected, comprising:

a) means **(3)** for checking a service state of a mobile station **(1)**, when a request for a paging message to said mobile station **(1)** has been received from one said of non-coordinated core networks **(5, 6)**; and

b) means **(3)** for transmitting a multicall paging message using an existing signaling link and/or mobile station location information known in a radio access network, when said

mobile station is already connected to another one of said non-coordinated core networks.

13. A paging control apparatus according to claim 12, wherein said paging control apparatus comprises a radio network controller **(3)** of said mobile communication system.

14. (Once Amended) A paging control apparatus according to claim 12 [or 13], wherein said non-coordinated core networks comprise a GSM-GPRS core network with no Gs interface between a Mobile Switching Center **(5)** and a Serving GPRS Support Node **(6)**.

15. (Once Amended) A paging control apparatus according to [one of claims 12 to 14] claim 12, wherein said mobile communication network comprises a GSM network.

16. (Once Amended) A paging control apparatus according to [one of claims 12 to 15] claim 12, wherein said non-coordinated core networks comprise a GSM network, a GPRS network, a GSM based UMTS, a GPRS based UMTS or any other circuit- and/or packet-switched core network nodes.

17. A paging control apparatus according to claim 16, wherein said one of said non-coordinated core networks comprises a mobile switching center **(5)** and wherein said other one of said non-coordinated core networks comprises a Serving GPRS Support Node **(6)**, or vice versa.

18. A paging control apparatus according to claim 17, wherein said mobile switching center is a GSM based UMTS mobile switching center and wherein said Serving GPRS Support Node is a GPRS based UMTS SGSN.